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# Just keep silent... Defensive silence as a reaction to successive structural reforms

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## ABSTRACT

Employees frequently have ideas and opinions on the execution of tasks or on the organization itself. Yet, sometimes employees remain silent and withhold this valuable input from their organizations because they fear experiencing conflict or controversy, causing both performance and employee morale to suffer. This article tests to what extent such fear of speaking up, referred to as 'defensive silence,' is affected by the extent of successive structural reforms an organization endures. Analyses of Norwegian Staff Surveys and of a structural reform database show that repetitive structural reforms affect employee engagement in defensive silence.

**KEYWORDS** Defensive silence; structural reform history; multi-level analysis

## 1. Introduction

Employee silence is a pervasive and potentially harmful aspect of organizational life (Premeaux and Bedeian 2003; Vakola and Bouradas 2005). While it was originally assumed that a lack of vocalized resistance implies agreement with decisions and with the behaviors of others, scholars of organizational science have more recently begun to recognize that silence may be engaged in as a strategic choice (Pinder and Harlos 2001; Van Dyne, Ang, and Botero 2003). Employees may choose to avoid discussing topics or may withhold information due to a fear of conflict, reprisals or other harmful consequences, due to a belief that speaking up is fruitless, or to protect peers and/or the organization (Van Dyne, Ang, and Botero 2003; Milliken, Morrison, and Hewlin 2003; Hassan 2015). Employee silence, especially when rooted in fear or resignation, may have serious consequences for public sector organizations (Hassan 2015). Civil servants may avoid raising problems, issues, and policy proposals in the areas in which they focus when they fear becoming embroiled in disputes or controversy as a result (De Graaf 2010). For instance, information withheld from politicians may eventually give rise to issues in parliament while a failure to disclose imminent policy failures in running organizations may result in the emergence of various scandals and crises. Internally, failing to address issues regarding management decisions can create further discontent while wrongfully communicating agreement to an

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organization's leaders (Wang and Hsieh 2013), thus potentially affecting services delivered to citizens (Vigoda-Gadot and Beerli 2011).

While employee silence may thus have substantial detrimental consequences for public organizations, its relatively recent rise to prominence as a concept has meant that research into its antecedents remains incipient (Van Dyne, Ang, and Botero 2003; Wang and Hsieh 2013; Jain 2015; Hassan 2015). Nevertheless, we know from previous research in the management sciences and in organizational psychology that substantial organizational changes can heighten perceptions of risk, uncertainty and fear of various adverse consequences affecting an organization (Staw, Sandelands, and Dutton 1981; Olsen and Sexton 2009; Muurlink et al. 2012) and that frequent changes may exacerbate such effects (Rafferty and Griffin 2006; Pollitt 2007). Thus, in this paper we examine whether the imposition of multiple successive structural reforms in public organizations may cause defensive silence, a specific subtype of employee silence associated with fear of adverse consequences for asserting one's position (Pinder and Harlos 2001; Van Dyne, Ang, and Botero 2003). In particular, we expect to find that uncertainty and threat perceptions generated through such reforms heighten the propensity for individuals to remain quiet to avoid potential adversity, disputes and controversy (e.g. Bommer and Jalajas 1999; Vakola and Bouradas 2005). Moreover, when structural reforms are frequently imposed, cues to remain quiet should become recurrent. This may be reflected in heightened levels of defensive silence observed after sequences of reform, as well as a gradual internalization of defensive silence as an appropriate and normal form of behavior through social cues within the organization (Wang and Hsieh 2013; Hassan 2015; Kiewitz et al. 2016). These various processes should in turn manifest themselves in the degree to which employees report issues and problems that may create some degree of controversy among their superiors or peers.

While research on employee silence and on its sub-dimensions has gradually been gaining prominence in the private sector management literature (e.g. Wang and Hsieh 2013; Jain 2015), the concept and its potential antecedents have as of yet received scant attention in the field of public administration (although see Hassan (2015) and De Graaf (2010)). However, processes particularly important to public organizations, including the early detection of policy failures or the identification of areas of improvement in policy implementation, are highly dependent on the input of civil servants that implement an organization's policies and tasks (Walumbwa and Schaubroeck 2009). Oftentimes such policy failures and areas of improvement are simultaneously subjects controversial to discuss within organizations, as suggestions and criticisms may run counter to the status quo or decisions from higher echelons (De Graaf 2010).

One high profile and devastating example of such a silence-induced policy failure is Space Shuttle Columbia's disintegration during re-entry in 2003. Insulating foam struck the Shuttle's wing after takeoff, an issue long known to NASA engineers as potentially dangerous to the Shuttle's structural integrity (Farjoun, 2005, 14–15). However, as this had not resulted in critical problems during earlier launches, management gradually became convinced that these occurrences were a non-issue, while engineers became reluctant to speak up against their superiors to avoid disputes. This led to a misplaced sense of consensus at the management level that mission safety was ensured, a factor that was ultimately an important enabler of the 2003 disaster (Moorhead, Ference and Neck 1991, 258).

In addition to policy failures, civil servants close to the execution of tasks may also have ideas or information useful to the performance or change processes of an

organization (Van Dyne, Ang, and Botero 2003; Wang and Hsieh 2013; Hassan 2015; Vakola and Bouradas 2005). The failure of an organization to utilize such grass-roots ideas may hinder its adaptability to its immediate external environment. Thus, given the importance of silence and voice in the public sector, and as empirical research on the side effects of repeated (structural) reforms remains scant (Pollitt 2007), our contribution will have important implications for policy-makers regarding ways that they may inadvertently influence organizations.

We test these expectations we use data on Norwegian state agencies, linking responses to the 2006 and 2016 Norwegian staff surveys with the Norwegian State Administration Database (NSAD), which includes information on structural reforms that organizations have been subjected to. In this context, structural reforms are defined as change events that alter organizational boundaries in terms of units included (e.g. mergers/splits or the absorption/secession of organizational units), that alter tasks attributed to organizations (including the allocation of new tasks or the loss of existing tasks) and/or that alter the structural embeddedness of organizations in the broader public sector (i.e. their legal forms and ministerial portfolios in which they are positioned) (see e.g. MacCarthaigh and Roness 2012).

The Norwegian public sector offers an interesting setting for our investigation into the effects of sequences of structural reforms. Despite being a reluctant reformer in the 1980s and 1990s, recent decades have seen not only NPM reforms but also New Public Governance and Neo-Weberian reforms. The most significant recent reform waves in Norway include hospital reforms (2001), welfare administration reforms (2007) and police reforms (2015). In contrast to those of many other European countries, the Norwegian reform trajectory has been relatively successful (Greve, Læg Reid, and Rykkja 2016). The presence of such reforms implies that various Norwegian public organizations have undergone frequent structural reforms over the past decade, rendering this country a suitable case for studying the effects of sequences of structural reforms.

## 2. Theoretical framework

### 2.1. *Defensive silence*

While concepts such as voice have received considerable attention in recent decades, research on employee silence and its antecedents remains at a relatively early stage. In part, this is due to the previously held (often tacit) assumption that employees who remain silent agree with the policies, decisions and behaviors of their peers and superiors (Van Dyne, Ang, and Botero 2003). In the 1990s and early 2000s, however, researchers began to recognize that silence in organizations is often engaged in as a conscious choice. Pinder and Harlos (2001) recognized the concept's multidimensional nature and proposed a distinction between acquiescent silence (i.e. silence based on a belief that speaking up on a certain issue will not make a difference) and quiescent silence (i.e. silence based on a fear of the detrimental consequences of speaking up), the latter being the focus of this contribution. Although later typologies have often renamed quiescent silence as defensive silence, and have added a number of other dimensions,<sup>1</sup> the basic distinction introduced by Pinder and Harlos (2001) has remained prominent throughout the literature (e.g. Morrison 2011; Wang and Hsieh 2013).

In their seminal contribution Van Dyne, Ang, and Botero (2003) emphasize that defensive silence represents a proactive behavior on the part of employees. This distinguishes defensive silence from acquiescent silence, a behavior based on the resignation that an event is unchangeable, that speaking up will be futile and an unwillingness to exert effort to voice issues. Thus, acquiescent silence may be seen as a mixture of resignation and disengagement, related to neglect and inaction behaviors (Van Dyne, Ang and Botero 2003). When engaging in defensive silence, on the other hand, an individual determines that speaking up is in some way risky to his/her position as doing so may cause disputes, controversies and/or sanctioning, and that this risk outweighs the benefits of speaking up (Van Dyne, Ang, and Botero 2003, see also De Graaf 2010). The key difference between acquiescent and defensive silence thus lies in its antecedent motivation: while the former is based on resignation, lacking self-efficacy and/or a lack of engagement, the latter is based on the perception of risk associated with speaking up. Defensive silence notably may cause individuals to put aside suggestions, proposals, ideas and issues that they may have while preferring not to take action to avoid being viewed as a 'troublemaker' (Vakola and Bouradas 2005; Milliken, Morrison, and Hewlin 2003; De Graaf 2010).

Such fear is likely caused by a variety of factors. Not only can a message itself be controversial or potentially damaging, an employee's relationship with his/her supervisors and risks of being sanctioned are also likely determinants of an individual's inclination towards a defensive silence strategy (Vakola and Bouradas 2005; Wang and Hsieh 2013; Bommer and Jalajas 1999; Rhee, Dedahanov, and Lee 2014). Power asymmetries and perceptions thereof play an important role in this regard, as individuals with less power require the resources and support of their superiors, ensuring that the former will be sensitive to the latter's signals (Kiewitz et al. 2016). However, this is not to say that defensive silence only manifests itself in relationships between supervisors and subordinates. Risks are inherent in exchanges with other colleagues as well, and defensive silence may serve to avoid disapproval from peers or to prevent a controversial issue from being disseminated throughout the workplace. Moreover, in the public sector, silence is likely present in external communication as well, as fear of stakeholder reprisals, public scrutiny and political disapproval loom when communicating on controversial actions.

Moreover, the broader organizational environment, encompassing aspects such as the degree to which participation and proactive behaviors are encouraged, as well as the degree to which individuals generally feel safe to speak up are likely to contribute to overall levels of defensive silence in an organization (Premeaux and Bedeian 2003; Walumbwa and Schaubroeck 2009; Wang and Hsieh 2013). This is reinforced by the social cues within an organization, which inform individuals as to whether speaking up on a certain topic at a certain time is appropriate (Wang and Hsieh 2013; Hassan 2015; Kiewitz et al. 2016). These cues and environments may themselves be embedded in longer-term organizational cultures, in which norms such as following instructions from superiors are passed on from employee to employee (Damanpour 1991). This may even affect new entrants, as they quickly learn the nuances of the organization's culture through socialization processes, including which types of behaviors are deemed (un)acceptable (Kim, Cable, and Kim 2005). Finally, occurrences external to an organization may reduce the degree to which input is accepted, as external crises may for instance foster a sense of short-term urgency within an organization (Vakola and Bouradas 2005; Staw, Sandelands, and Dutton 1981). This implies that factors

influencing aspects such as power asymmetries, working environments, extant cultures and perceptions of urgency within an organization may be conducive to the strategic use of defensive silence by employees.

## **2.2 The theoretical link between structural reforms and defensive silence**

Structural reforms have been found to have a large variety of intended and unintended effects on organizations, with many of the latter being related to perceptions of uncertainty that they produce (Bommer and Jalajas 1999; Amiot et al. 2006; Pollitt 2007; Moore, Grunberg, and Greenberg 2004; Rafferty and Griffin 2006). Frequent changes in the makeup of an organization are accompanied by uncertainty regarding future structures, with employees wondering whether and how any changes will affect them and their position within an organization (Rafferty and Restubog 2017). As the rate of public sector restructuring increases to the point that some organizations experience it as continuous (MacCarthaigh 2012; Pollitt 2007), perceptions of uncertainty may become exacerbated due to a lack of a determinate end to the structural reform process (Rafferty and Griffin 2006; Rafferty and Restubog 2017). In this context, it is important to emphasize that such uncertainty affects every echelon of an organization affected by a structural reform, with managers facing the uncertainty and urgency of implementing aspects of structural reforms falling under their remit while other members of an organization face consequences that are (partially) beyond their control.

We argue that, through such uncertainty, various effects are caused within the organization that increase the degree to which individuals engage in defensive silence. To understand why uncertainty resulting from frequent structural reforms may cause defensive silence it is helpful to briefly elaborate on threat-rigidity theory, which was developed in organizational psychology to predict effects that an organization experiences when facing a potentially threatening situation (Amabile and Conti 1999; Olsen and Sexton 2009). In defining a threat as ‘*an environmental event that has impending negative or harmful consequences for the entity*,’ Staw, Sandelands, and Dutton (1981, 502) argue that threatening events may have a number of effects on various levels of an organization. First, events perceived as threatening are likely to increase levels of stress and anxiety throughout the organization (Staw, Sandelands, and Dutton 1981; D’Aunno and Sutton 1992; Olsen and Sexton 2009; Muurlink et al. 2012). This occurs not only for top managers tasked with guiding an organization through a threat (Muurlink et al. 2012) but also at lower levels of an organization, as individuals fear that their own positions, their future prospects or the organization’s well-being may be adversely affected by a given threat (Staw, Sandelands, and Dutton 1981).

Second, threatening events generate perceptions of urgency and especially for decision-makers within organizations, who feel that they must avert or mitigate threats as soon as possible (Staw, Sandelands, and Dutton 1981; Muurlink et al. 2012). Together, these effects have a variety of implications for the behaviors of individuals within organizations. At this level, some frequently observed consequences of the threat-rigidity effect include a centralization of control and a formalization of procedures by an organization’s management team (D’Aunno and Sutton 1992), which exacerbate power asymmetries within an organization and which induce social cues against speaking up. Uncertainty resulting from structural

reforms cause decision-makers to centralize control in small groups to be able to quickly and decisively address a threatening event *inter alia* by reducing the degree to which disputes and conflicts must be considered within an urgent context (Staw, Sandelands, and Dutton 1981; D'Aunno and Sutton 1992; Olsen and Sexton 2009). Simultaneously, a less flexible, more formalistic mode of internal governance is adopted to ensure conformity during the threatening period (Olsen and Sexton 2009). The combination of uncertainty and urgency is also likely to cause the organization's decision-makers to experience information overload (Staw, Sandelands, and Dutton 1981), leading decision-makers to overemphasize solutions and knowledge applied in the past (Muurlink et al. 2012; Daly et al. 2011). In this context, an increased focus on 'in-group' decision-making during the threatening event serves to simplify information and problems confronting the organization (Staw, Sandelands, and Dutton 1981). However, this in-group decision-making combined with the aforementioned tendency to centralize control may simultaneously lead to groupthink and an intolerance for deviant opinions.

Third, employees in lower levels of an organization, similarly faced with a threatening stressor, will tend toward uncertainty-reducing behavior. Thus, to manage the uncertainty confronting them, employees may become more sensitive to cues from superiors and to their work environment, while becoming less inclined to take independent action (Staw, Sandelands, and Dutton 1981; Bommer and Jalajas 1999). This is reflected in existing research with authors finding a reduced propensity for creative behavior and involvement (Olsen and Sexton 2009; Amabile and Conti 1999) and a reduced willingness to take risks or make suggestions to supervisors (Bommer and Jalajas 1999). This uncertainty-reducing tendency is compounded by processes occurring at higher levels in the organization, with the aforementioned increases in formalization and centralization increasing power asymmetries and the likelihood of hostile responses towards deviant behavior (Olsen and Sexton 2009). In sum, through threat-rigidity effects, organizations may be expected to become less accepting of deviant opinions and suggestions while individuals may simultaneously become less inclined to engage in behavior that could lead to conflict and controversy and that could thus place their own positions at risk.

As elaborated on earlier in this section, defensive silence is motivated by perceptions of threat and fear regarding potentially adverse consequences of speaking up (Premeaux and Bedeian 2003). Various elements of threat-rigidity theory may therefore foster an environment conducive to the use of defensive silence. Increases in uncertainty and threats to individual positions (e.g. job security, maintaining current job content or the continuation of valued projects) may directly heighten the degree to which individuals are likely to use strategies to avoid being viewed as a 'troublemaker,' including those of defensive silence (Vakola and Bouradas 2005). Moreover, as organizations under threat often increase levels of formalization and sanctioning when experiencing threatening events, the fear of being labelled a troublemaker upon speaking up may be heightened further (Staw, Sandelands, and Dutton 1981).

Wang and Hsieh (2013) moreover report a negative effect on defensive silence when individuals experience their organization's environment to be caring, nurturing and ethical, and when they perceive high levels of organizational support. Similarly, Walumbwa and Schaubroeck (2009) find reduced levels of silence when employees experience a psychologically secure environment while Vakola and Bouradas (2005) find that whether or not supervisors deny employees the opportunity to express



themselves is a powerful predictor of the occurrence of defensive silence. Therefore, the effects predicted by threat-rigidity theory, including reduced participation in decision-making, increases in groupthink and an increased intolerance of deviant opinions, may reduce the degree to which employees consider their environments supportive and safe to speak up in and encouraging the use of defensive silence. Finally, as employees are part of a broader social context involving a sequence of structural reforms, this effect may be further ingrained due to social cues emphasizing perceptions of threat, fear and silence (Hassan 2015).

Moreover, there are some important indications that the effects of structural reforms, including those predicted by threat-rigidity theory, may be dynamic over time – increasing when reforms confront an organization sequentially and gradually decreasing as an organization enters calmer waters (e.g. Seo and Hill 2005). Rafferty and Griffin (2006) and Rafferty and Restubog (2017) argue that repeated or continuous changes may further heighten levels of uncertainty and stress, as individuals see no discernible end to the structural reform trajectory. Moore, Grunberg, and Greenberg (2004) and Grunberg et al. (2008) accordingly find that work-related stress is exacerbated for respondents who have experienced multiple reforms. Following threat-rigidity, we may expect to find further reductions in participation and information-processing and further increases in centralization, groupthink, formalization and sanctioning in such repeatedly reformed organizations. As these factors may in turn be conducive to defensive silence, it is likely that frequent and continuous structural reforms may increase levels of defensive silence in an organization beyond what we might expect to observe in organizations that have only experienced a single reform event. Moreover, when defensive silence is heightened for a prolonged period of time in a continuously reformed organizations, we may begin to expect a gradual effect on the organization's culture, causing it to become gradually less conducive to speaking up without consequences (Wynen, Verhoest, and Kleizen 2017). We therefore propose, first, that structural reforms may increase the usage of defensive silence on an individual level through effects predicted by threat-rigidity theory and, second, that multiple successive structural reforms occurring to an organization may further increase the propensity of organization employees to engage in defensive silence.

### 3. Data

To empirically test the relationship between an organization's history of structural reforms and degrees of defensive silence observed among employees working in these organizations, we make use of two data sources on Norwegian state agencies.

First, we use data from a comprehensive web-based survey conducted every 10 years on civil servants of the different directorates and of other central administration organizations functioning apart from the ministries in Norway. The survey is conducted as part of a Central Administration study, its technical execution is managed by the Norwegian Social Science Data Service (NSD) and its setup and funding is managed through a collaborative arrangement between the University of Bergen, the University of Oslo and the University of Agder. The survey includes information on individual demographic measures, on structural variables, on attitudes and on a range of other issues. Our analyses focus on employees of central state agencies and are based on the most recent 2016 and



2006 surveys, which are a continuation of corresponding surveys conducted in 1976, 1986 and 1996. The state agencies included in our sample have the following Norwegian-specific form of affiliation: ‘directorates, central agencies and other ordinary agencies outside the ministries which are the types most closely linked to the state centre and subject to general government regulatory frameworks’ (Lægreid, Roness, and Rubecksen 2012, 235). They are clearly Type 1 agencies as defined by Van Thiel (2012, 20) as semi-autonomous organizations without legal independence but with some managerial autonomy. We utilize the 2016 and 2006 waves of the survey as they offer the closest resemblance in terms of utilized questions. The 2006 staff survey has a response rate of 59.3%, accounting for 1452 respondents of 49 central agencies. The 2016 survey is based on 1963 respondents of 47 central agencies with a response rate of 59.5%. More precise information on the survey process, on response rates of each organization and on the validity of responses can be found at the NSD website (<http://www.nsd.uib.no/polsys/en/civilservice/>). Item non-response reduced the total sample of both surveys to a usable dataset of 1077 employees within 41 central state agencies (with at least 5 respondents per organization). We compared the sample used with the original representative sample for the average respondent age and gender. Both samples are similar, suggesting that observations used to estimate the regressions constitute a representative subsample of all employees originally included in the survey. Moreover, we calculated a Representativity-indicator (R-indicator or  $M()$ ) (see for a detailed discussion Schouten et al. 2012). Such an indicator is based on the standard deviation of estimated probabilities and is defined by:

$$M(\rho) = 1 - 2S(\rho) \quad (1)$$

The probability for being in the smaller subsample or not is estimated by applying a logisitic regression model using the variables age, gender, tenure, position, task and starting job as auxiliary variables. The smaller subsample is not representative if there is much variation in response probabilities. This is reflected by a large standard error. The maximum value the standard error can assume is 0.5. In this case the value of the R-indicator is equal to 0. For our subsample the value of the R-indicator ( $M()$ ) is equal to 0.95, indicating that respondents in the subsample do not differ significantly from respondents in the original and representative sample.

Second, as an indicator for the structural reforms that organizations have experienced through their lifetime was constructed from data of the Norwegian State Administration Database (NSAD; <http://www.nsd.uib.no/polsys/en/civilservice/>). For these 41 organizations, the NSAD lists all reforms made to formal organizational structures from the founding of the organizations to 2016. The database uses a predefined categorization that classifies structural reforms into three main categories: reforms related to the founding of an organization, reforms related to the survival or maintenance of an organization, and reforms related to the termination of an organization. We are primarily interested in the effects of structural reforms imposed during the lifetimes of organizations. Thus, we focus on maintenance events such as those involving absorption and secession while leaving birth and death events beyond consideration. In what follows structural reforms leading to the creation or ending of public organizations are not included in our analysis. A total of 156 maintenance events are recorded with the following distribution<sup>2</sup>:

### 3.1. Operationalizing defensive silence

As discussed by Pinder and Harlos (2001), defensive silence is an intentional and proactive behavior based on a fear of the consequences of speaking up (see also Van Dyne, Ang, and Botero 2003; Milliken et al., 2005). As such it involves a conscious decision to withhold ideas, information, and opinions as the best personal strategy (Van Dyne, Ang, and Botero 2003) to avoid conflict, disputes or controversy. To measure defensive silence, a two-item scale is used in line with the concept of defensive silence of Van Dyne, Ang, and Botero (2003). Both questions gauge the extent to which an individual has refrained to communicate or interact on a topic from a fear of spurring conflicts, disputes or controversy and utilize a 5-point Likert scale, ranging from 1 (very often) to 5 (never):

- *Have you, during the past year, failed to raise a problem/matter within your area because you assumed that there would be a dispute about it?*
- *Have you, during the past year, put aside program proposals, draft laws, regulations, etc. within your area because there was controversy about these?*

Answers given to these questions generated a single factor (based on a polychoric matrix) and a Cronbach's  $\alpha$  for this index of .74. The factor score is used as the dependent variable.<sup>3</sup> The lower the score, the higher the degree of defensive silence.

### 3.2. An organization's history of structural reforms

From information collected from the NSAD it was possible to construct an indicator for the history of structural reforms of each organization. This history was reconstructed from the date of each organization's founding to the time of each staff survey. It is difficult to make definitive statements on the length of time any single structural reform will impact the organization, in particular as a reform may interact with other structural reforms being implemented slightly earlier or later. Thus, to examine whether our analyses remain robust under slightly differing assumptions on the duration of the effect of structural reforms, our dependent 'history of structural reforms' was calculated in three ways;

$$\sum (\text{Reform events}) \quad (1)$$

The first operationalization consists of the total number of structural reforms that each organization has experienced over its lifetime.

$$\sum \left( \frac{\text{Year of reform event} - \text{Birthdate}}{\text{Age of the organization}} \right) \quad (2)$$

In the second operationalization, history is dependent on the date when reforms occurred, with a longer time period yielding a lower impact factor.

$$\sum \left( \frac{1}{(2016 - \text{Year of reform})} \right) \quad (3)$$

The third operationalization takes the time dimension into account, yet unlike (2), it deviates from a linear depreciation by allowing for an exponential decline. It is, however, important to note that for reforms occurring in 2016, the denominator is

set to 1. Hence reforms occurring in 2015 (year before the survey) and 2016 (year of the survey) have an equal effect. Moreover, in coding 3 it is clear that recent reforms have a significantly larger impact than ‘older’ ones.

Although little systematic research has been conducted, there are some articles that point to coding 3 as the most realistic operationalization. Allen et al. (2001), investigating a downsizing event, notes significant and sizeable effects on job security perceptions, role overload, organizational commitment and turnover intent immediately following a reform, and a resurgence in the same variables one year and four months following the reform (and without another reform being introduced). Despite moving towards pre-reform levels, most variables remained somewhat suppressed after a year had passed. In one of the rare studies tracking multiple reforms, Grunberg et al. (2008) and Moore, Grunberg, and Greenberg (2004) observe an accumulation of effects while the organization continues to encounter change, but Grunberg et al. (2008) also find a partial recovery one year after the studied organization enters more stable waters. Moreover, while recovery did set in relatively soon in the study by Grunberg et al. (2008), most well-being variables remain somewhat suppressed. Combined, these results suggest that the strongest effects manifest during the early phases of the reform, but that many effects may linger much longer. These results are similar to what is expected in the theoretical model proposed by Seo and Hill (2005), who suggest that uncertainty, conflict, job environment change and acculturation stress should be strongest in the initial planning and operational implementation phases of a structural reform, after which a stabilization period follows in which many effects still linger at reduced levels. Furthermore, as mentioned in the theoretical framework, papers such as those by Grunberg et al. (2008) and Moore, Grunberg, and Greenberg (2004) also indicate that effects may accumulate when recovery remains incomplete. Thus, a coding that 1) captures strong effects immediately following a structural reform, 2) that also allows for some (but a substantially reduced) effect of that reform in later times, and 3) allows this effect to accumulate with the effect of other structural reforms, seems the most well-supported interpretation of the long-term effects of a sequence of structural reforms.

As discussed above, we were forced to use a subsample of the initial data. To ensure that this did not introduce a bias in terms of organizational history, we compared the histories of the initial organizations with those of the organizations included in our sample. Averages for the different operationalizations of organizational history for both the original (including organizations removed from the analysis) and the used sample of organizations are presented in Table 1. Although values for the used sample are slightly higher than those of the original sample, the differences are not significant.

**Table 1.** Comparison of histories of the original and used sample.

	Original Sample				Used Sample				Independent Samples T		
	2006		2016		2006		2016		2006	p=.12	20
	Mean	Sd.	Mean	Sd.	Mean	Sd.	Mean	Sd.			
History (1)	2,21	2,77	3,04	2,90	2,40	2,88	3,29	3,03	t=-1.55	p=.12	t=-.02
History (2)	1,35	1,87	2,37	2,34	1,43	1,94	2,58	2,47	t=-.73	p=.46	t=-0.48
History (3)	0,19	0,41	0,08	0,21	0,21	0,45	0,09	0,23	t=.59	p=.55	t=1.12

### 3.3. Control variables

Based on the literature on employee silence we consider a wide range of variables of the individual and organizational levels that control for alternative explanations for the occurrence of defensive silence. The first set reflects individual characteristics. The following variables are used: 1) age, 2) gender, 3) current position, 4) tenure within the organization, 5) the position of the respondent upon entering the organization, 6) language, 7) whether the respondent has studied abroad, 8) the respondent's current responsibilities, 9) whether the respondent has received any job offers over the past year, and 10) whether a respondent is politically engaged. In addition to these individual characteristics, we also include the individual's perception on his/her job and the organization. Variables on these factors include 1) the degree to which there are clear rules concerning an individual's job, 2) attitudes towards superiors, 3) the importance of loyalty, 4) professional behavior and 5) the propensity to follow rules. Respondents were asked to assign a weight based on the importance of these elements while carrying out their work. Apart from these individual-level controls we consider information on the primary task of each organization (based on the Classification of the Functions of Government, see [Table A2](#)) and on organizational age. [Table 2](#) shows descriptive statistics while a correlation matrix for key variables is provided in [Table 3](#). The precise wording of the survey questions as well as a full correlation matrix and an overview of the variance inflation factors is available in appendix.

## 4. Method & results

As our observations of defensive silence are simultaneously nested within organizations and years (we rely on 2006 and 2016 waves of the staff survey), a linear multilevel analysis<sup>4</sup> with crossed random effects was employed. More precisely, we believe the effect of survey year to be systematic to that year and common to all employees. Our rationale is that we assume that survey year-specific random factors, such as overall economic and political conditions, have significant systematic effects on the defensive silence behaviors of all employees. As such, we model a two-way crossed-effects model with organization effects crossed with survey-year effects. Corresponding results are presented in [Table 3](#). Entries included in the table are the full maximum likelihood estimates.

We first estimated an 'empty' (also called 'unconditional' or 'null') model to determine the extent of variance between organizations (Column (1)). When averaging across respondents, organizations and years, the indicator for defensive silence equals 3.9. This corresponds well with the mean for defensive silence (see [Table 2](#)). Moreover, the Likelihood Ratio (LR) test value equals 44.30 with 2 degrees of freedom and with a p-value of .000, which must be halved to obtain a less conservative test.<sup>5</sup> In this case, halving does not affect the conclusion. The null hypothesis should be rejected, as there is evidence of cross-organization and cross-survey year variation in levels of defensive silence.

The intra-class correlation coefficient (ICC) estimates the proportion of variance at the organization and year levels relative to the overall variance. As the dependent variable is measured at the individual level (civil servant level), this level should also present the highest ICC score (Steenbergen and Jones 2002, 231). The ICC equals roughly 7%, meaning that roughly 7% of the variance in defensive silence is attributable to differences observed across organizations and across both survey years, with the remaining

**Table 2.** Descriptive statistics.

Variables	Question <sup>a</sup>		Mean	Sd.
	2006	2016		
Defensive silence	Factore	Score	3.870	0.758
Failed to propose an issue	46	40	4.283	0.943
Failed to raise an issue	47	47_1	4.268	0.928
Organizational level N = 41 (across 2 years)				
Individuals per organizations			Min.	6
			Average	26,3
			Max.	78
Number of events			2.877	2.853
Linear depreciation			2.048	2.425
			0.117	0.257
			5.024	2.992
			39.60	46.71
Individual level N = 1077				
Age	9	531	3.807	1.062
Gender	10	54	1.434	0.496
Position	2	21	1.750	1.071
Tenure	2B	61_3	2.669	0.569
Startingjob	5	51	2.004	1.073
Rules	17	7	2.829	1.159
Task	15	5	6.003	2.474
Joboffers	8A	52A	1.655	0.476
Study abroad	13	56	1.805	0.396
Language	54	57	1.929	0.374
Important_loyalty	18B	18B	1.666	0.837
Important_Professional	18F	18F	1.378	0.601
Important_Law	18J	18J	1.499	0.852
Political	59	62	0.291	0.454
Attitude to superior	49	43	1.500	0.615
Year			2010	4.942

<sup>a</sup>The surveys can be consulted on line:

<http://www.nsd.uib.no/polsys/StatiskeDokument/SpSkjemaDir06.html>

**Table 3.** Correlation matrix between key independent and dependent variables.

Variables		(1)	(2)	(3)	(4)	(5)
Failed to propose an issue	(1)	1.0000				
Failed to raise an issue	(2)	0.6011*	1.0000			
Number of events	(3)	-0.0203	0.0016	1.0000		
Linear depreciation	(4)	-0.0239	0.0039	0.8802*	1.0000	
Exponential depreciation	(5)	-0.0026	-0.0664	0.2010	0.1845*	1.0000

93 percent being attributable to individual differences. Even though the ICC is not very high, disregarding it would lead to erroneous conclusions, both statistically and empirically.

In the subsequent step (see column (2)), the level-1 covariates have been added to the model, for now assuming fixed effects. The intercept was, however, allowed to vary across organizations and survey years to accommodate cross-organization and year differences in baseline self-censorship. In this column it is noticeable that age, the degree to which clear rules are given concerning a respondent's job, respondent tasks, the importance of professional considerations and the political engagement of the respondents significantly affect levels of defensive silence.

**Table 4.** Multilevel results with crossed effects.

Index Defensive Silence					
Variables	(1)	(2)	(3)	(4)	(5)
Constant	3.90*** (0.05)	3.72*** (0.26)	3.71*** (0.27)	3.71*** (0.28)	3.71*** (0.28)
<b>Individual level</b>					
Age		0.08*** (0.02)	0.08*** (0.02)	0.08*** (0.02)	0.07*** (0.02)
Gender		0.03 (0.05)	0.03 (0.05)	0.03 (0.05)	0.03 (0.05)
Position		$\chi^2$ (3)=1.37	$\chi^2$ (3)=1.01	$\chi^2$ (3)=0.92	$\chi^2$ (3)=1.05
Tenure		$\chi^2$ (2)=0.82	$\chi^2$ (2)=1.4	$\chi^2$ (2)=1.29	$\chi^2$ (2)=1.42
Startingjob		$\chi^2$ (4)=4.57	$\chi^2$ (4)=3.85	$\chi^2$ (4)=3.83	$\chi^2$ (4)=4.15
Rules		-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)
Task		$\chi^2$ (9)=18.32**	$\chi^2$ (9)=19.2**	$\chi^2$ (9)=19.16**	$\chi^2$ (9)=20.22**
Joboffers		0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)
Attitude to superior		0.03 (0.04)	0.03 (0.04)	0.03 (0.04)	0.03 (0.04)
Studiedabroad		0.02 (0.06)	0.01 (0.06)	0.00 (0.06)	0.01 (0.06)
Language		$\chi^2$ (3)=4.65	$\chi^2$ (3)=5.33	$\chi^2$ (3)=5.18	$\chi^2$ (3)=4.99
Importance_loyalty		0.00 (0.03)	0.00 (0.03)	0.00 (0.03)	0.00 (0.03)
Importance_Professional		-0.11*** (0.04)	-0.11*** (0.04)	-0.11*** (0.04)	-0.12*** (0.04)
Importance_Law		0.00 (0.03)	0.00 (0.03)	0.00 (0.03)	0.01 (0.03)
Political		-0.18*** (0.05)	-0.18*** (0.05)	-0.18*** (0.05)	-0.18*** (0.05)
<b>Organizational level</b>					
Cofog			$\chi^2$ (9)=23.6***	$\chi^2$ (9)=21.85***	$\chi^2$ (9)=19.35***
Organizational age			0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
History (1)			-0.04*** (0.01)		
History (2)				-0.03** (0.01)	
History (3)					-0.18* (0.10)
Observations	1.077	1.077	1.077	1.077	1.077
Number of Organizations	41	41	41	41	41
Number of Years	2	2	2	2	2
LR test (conservative)	$\chi^2$ (2) =44.30***	$\chi^2$ (2) =40.55***	$\chi^2$ (2)=8.08**	$\chi^2$ (2)=8.88**	$\chi^2$ (2)=9.62***
Intra-class correlation	0.068				
Level-1 R <sup>2</sup>		0.158			
Level-2 R <sup>2</sup>			0.683	0.631	0.597

Standard errors in parentheses \*\*\* p<0.01. \*\* p<0.05. \* p<0.1.

Again there is evidence of variation in the intercepts. Comparing the fit of the random intercept model to that of a regression model yields an LR score of 40.55 with a p-value of .000. Hence, we can clearly reject the null hypothesis that the intercept is the same across all organizations and survey years, as the regression model assumes. Moreover, these level-1 covariates account for roughly 16 percent of the variation in the outcome.

To account for variation in the intercepts, we add level 2 covariates to columns 3, 4 and 5. The difference between these 3 columns lies in the coding of organizational histories. Column 3 includes the first operationalization of organizational history (total number of structural reforms an organization has endured over its lifetime), column 4 includes the second operationalization of organizational history (taking the time dimension into account via linear depreciation) and column 5 is based on the third operationalization of history (taking the time dimension into account via exponential depreciation). For all models, the same level-1 covariates remain statistically significant. Of the newly added level-2 covariates, the function of the organization and of all codings of organizational history are statistically significant. We find that a higher score for organizational history significantly affects levels of defensive silence engaged in by employees. Thus, the more organizations are faced with structural reforms, the more their employees are likely to engage in defensive silence (reversed coding). Following from column 3 it appears that an increase of one structural reform leads to a 4% increase in this form of behavior. This is visualized in [Figure 2](#).

A similar observation can be made for column 4 (linear depreciation). Yet the effect of structural reforms increases significantly when allowing for exponential depreciation. From this operationalization it appears that a new structural reform occurring in the following year (an additional event occurring in 2017 will increase the value of organizational history by a value of 1) will spur a temporal increase in levels of defensive silence engaged in by employees in a given organization of roughly 20%.

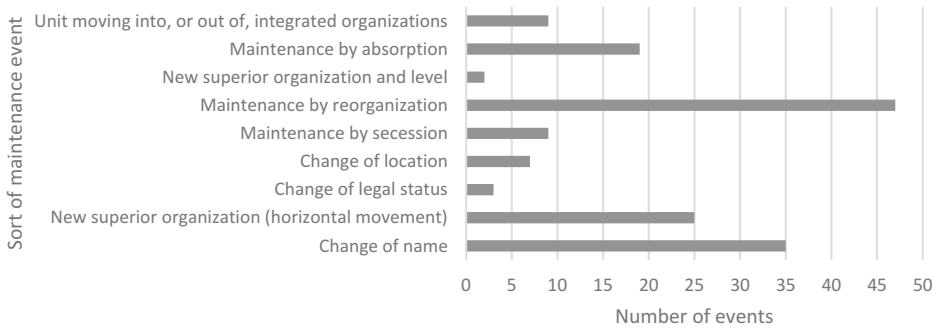
Moreover, while the effect of a new reform event will decline over time, it will boost the overall index of organizational history. As such, we argue that organizations may experience effects of any given structural reform over the long-term, even if their impact is gradually reduced over the years, and that these effects may accumulate when multiple reforms occur in quick succession. The level-2  $R^2$  values range from 68% to 60%, suggesting that the level-2 variables account for a significant proportion of the variation in the intercepts. Hence, sequences of structural reforms appear to significantly increase levels of defensive silence.

To check the robustness of our results, we removed structural reforms involving a 'change of name' from the list of structural reforms. Although this type of event can be argued to represent a discontinuation of 'key structural features' (Hajnal 2012, 837; Greasley and Hanretty 2014), the inclusion of this type of change can also be criticized on grounds that it has little or no impact on the functioning of an organization (for a detailed discussion, see Kuipers, Yesilkagit, and Carroll 2018). Following this reasoning, a name change should not contribute to the turmoil caused by a sequence of other structural reforms or should have only a minor effect. Therefore, our analyses were also tested across the maintenance events discussed in [Figure 1](#) but while excluding events involving a name change. Corresponding results are presented in [Table A1 \(Appendix\)](#). The exclusion of this type of event has no impact on our findings; sequences of structural reforms increase employee engagement in defensive silence within an organization.

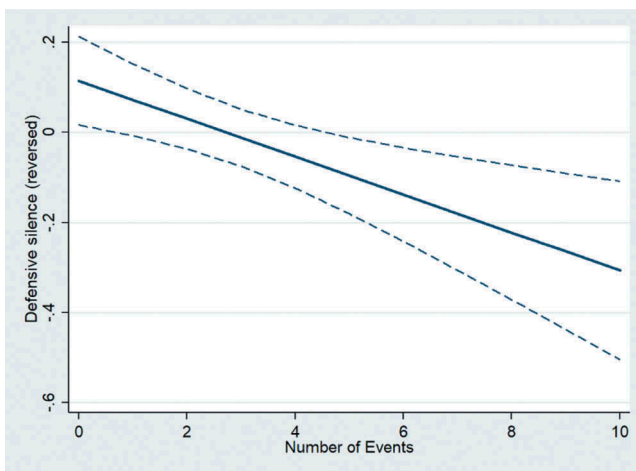
## 5. Discussion

The results presented in the previous section offer substantial support for our expectation that sequences of structural reforms increase the likelihood for public sector employees





**Figure 1.** Available maintenance events and their distributions.



**Figure 2.** Plot of the coefficient of organizational history (number of events).

to engage in defensive silence options. Importantly, our results imply that the effects of structural reforms on defensive silence are determined not only by discrete structural reform events, but also by their accumulation and interplay over time (Rafferty and Griffin 2006). It seems that these effects persist long after their imposition, either through lingering adaptation efforts or through their effects on the cognitive processes of employees (Allen et al. 2001; Rafferty and Restubog 2017).

Our observation that employees become hesitant to speak up in frequently reformed organizations due to a fear of adverse consequences lends further credit to the arguments of threat-rigidity theory that structural reforms induce a constricting effect within organizations. In turn, this constricting effect causes individual employees to perceive voice options on controversial issues as risky, reducing the likelihood of such options being utilized (Bommer and Jalajas 1999). Moreover, from our observations we are able to make a number of propositions on the temporal dynamics that influence the defensive silence, and the mechanisms through which threat-rigidity in turn influences the degree of defensive silence in the organization. It has been argued that structural reforms heighten an employee's

perceptions of risk associated with any given initiative due to perceptions of uncertainty or threat (Staw, Sandelands, and Dutton 1981; Bommer and Jalajas 1999). As turmoil becomes a constant factor within repeatedly reformed organizations, employees may perceive the process as having no predictable path or discernable end, further increasing their perceptions of uncertainty regarding both the change process and their positions within the organization (Rafferty and Griffin 2006). We argue that this process may in turn enhance perceptions of threat, discouraging employees from speaking up on controversial and sensitive issues. Threat-rigidity theory furthermore suggests that structural reforms render managers and decision-makers more likely to operate in a top-down and formalized manner (Amabile and Conti 1999), increasing fear of reprisal or of other adverse consequences for the display of deviant behaviors or opinions. The combination of both mechanisms gradually creates an atmosphere in which defensive silence is engaged in more frequently. Over the long-term, and as further structural reforms continue to confront an organization, levels of defensive silence may remain heightened and can gradually become ingrained within an organization through social cues and organizational cultures (Hassan 2015).

It is also interesting that we observe this relationship within the context of the Norwegian public sector. As noted above, the threat-rigidity effect operates in part through power asymmetries, formalization and a decreased tolerance for deviant opinions. Simultaneously, Norwegian culture is characterized as comparatively cooperative, low in power distance levels and relatively tolerant of uncertainty; factors which are conducive to flat organizations and to the acceptance of deviant opinions (Hofstede 1980; Hetland and Sandal 2003). Thus, if national cultures would mediate or moderate the relationship between structural reforms and defensive silence, it is arguable that Norway would be a comparatively unlikely candidate to display the effects explored in this article. Indeed, Jain (2015) argues that employees working in countries characterized instead by high levels of power asymmetry and a strong sense of hierarchy should be relatively prone to engaging in various forms of silence. Given that we consistently find a relationship between sequences of structural reform and defensive silence even in the Norwegian context, we are cautiously optimistic that the results presented here are generalizable to other national contexts.

Our observation that long-term sequences of structural reforms have cumulative effects runs counter to a current tendency for the academic literature and policy-making circles to view (structural) reforms as isolated events (Moore, Grunberg, and Greenberg 2004) and suggests that a more holistic view of the long-term processes operating within organizations is needed (Pollitt 2007). Our results imply that policy-makers should actively attempt to consider lingering effects of previous reform moments in their analyses of the costs and benefits that future structural reforms may have. Furthermore, our finding that previous structural reforms have left a legacy with regard to defensive silence behaviors can encourage the exploration of improved change management during the implementation of future structural reforms, as organizations can attempt to implement programs intended to foster the perception that employees may safely voice their concerns and suggestions (Walumbwa and Schaubroeck 2009). This may include additional communication and support from managers to enhance the perception that discussing problems and controversial topics is encouraged and emphasizing that no sanctions will be taken against employees that speak up on sensitive issues (e.g. Borins 2001; Axtell et al. 2000; Premeaux and Bedeian 2003; Rhee, Dedahanov, and

Lee 2014). In particular in cases where remaining silent could have strong detrimental consequences, this may include various procedures to safely or anonymously report issues, including the introduction of Ombudsmen and appropriate whistleblowing channels and safeguards. Procedures could include rules guaranteeing unequivocal protection of whistleblowers and effective follow-up of such rules through disciplinary action (Lewis 2002). Management could furthermore attempt to increase the awareness of reporting, mediation and whistleblowing procedures within their organizations, to ensure that employees are aware of existing options to safely voice serious concerns (Chiu 2003).

Regarding control variables, we find interesting results for rule clarity, the importance of professional behavior and political engagement, all of which significantly increase the probability of a respondent having engaged in defensive silence behavior. The effect for rule clarity likely represents a general increase of wariness concerning the consequences of speaking up in more heavily regulated environments. This is consistent with results in innovation research, which find that organizational cultures that overemphasize rule-following behavior are less beneficial to creativity and new ideas (e.g. Damanpour 1991). Our results for importance of professional behavior suggest that the degree to which behavioral norms are embedded in an organization's culture influences the perceived acceptability of speaking up. We speculate that increased institutionalization of certain roles could reduce the acceptability for employees to openly deviate from behavior expected in that role. Our result for political engagement is more puzzling, however. One could speculate that politically active employees fear being seen as politically biased, causing them to exhibit higher degrees of defensive silence behavior. However, examining this in detail is beyond the scope of our analysis, as more fine-grained measures of political engagement are necessary to address this issue.

While our analysis includes several methodological improvements over previous studies in the field (notably the measurement of multiple structural reforms and the use of multilevel data and methods), this paper remains subject to several limitations. While we account for long-term developments in our measurements of structural reform history and defensive silence, the available data could not be used to compile panel data. Hence, the presence of reverse causation or simultaneity could not be ruled out. Thus, future studies should use panel data estimators to offer more definitive evidence on the causal direction between structural reform histories and defensive silence. Utilizing such panel data estimators should simultaneously mitigate issues of endogeneity beyond what was possible from our data. Moreover, given that threat-rigidity was used as a theoretical mechanism in the current study, future studies should attempt to apply data on the various effects proposed by the theory.

## 6. Conclusion

This paper set out to investigate how multiple reforms implemented over time produce a cumulative effect on the use of defensive silence strategies by employees. For a sample of 1077 civil servants employed at 41 Norwegian central agencies it was found that the use of defensive silence as a strategy to avoid conflicts increases following repeated structural reform. The insight that structural reforms are not

independent interventions, but instead form an integral part of a broader organizational history, will hopefully inspire further research on the long-term processes that affect an organization's functioning and performance. Future research should for instance focus on the effects of multiple structural reforms on other outcomes, such as employee well-being, performance and organizational culture. Additionally, qualitative research on the workings of the threat-rigidity effect at various levels of an organization seems necessary to tease out the specifics of this mechanism. Third, additional research on the workings and antecedents of defensive silence for public organizations seems necessary, as this factor may be an important determinant of an organization's capacity to avoid policy failure through feedback loops. Finally, other forms of self-censoring behavior such as acquiescent silence (i.e. a tendency to self-censor due to perceptions that one's opinions are inconsequential) form areas warranting further exploration. For practitioners and policymakers, the results presented here should serve as a warning that their plans for structural reform may be influenced to a considerable degree by earlier reforms and that imposing new reforms may have broader and more persistent detrimental effects than is often anticipated. Indeed, when organizations seek to encourage openness and feedback, it seems that the frequent and rapid introduction of structural reforms can become too much of a good thing.

## Notes

1. In addition to defensive and acquiescent silence, Van Dyne, Ang, and Botero (2003) identify prosocial silence, a positive form of silence designed to defend peers or an organization.
2. The complete list of structural changes (starting, maintenance and ending events) included in the NSAD can be consulted in the appendix (Table A1).
3. Based on the polychoric matrix, we calculated the weights (factor loadings). By doing so, the factor score will not center on zero nor will it have a standard deviation of 1. To ensure that this did not introduce a bias we re-ran the analyses whereby the dependent is a factor score based on a factor analysis without first computing a polychoric matrix (i.e. based on the variables directly). Results were identical.
4. To test whether the errors of the dependent are distributed normally, polynomials (quadratic, cubic) of the fitted values were added as additional regressors. A Wald test was performed to check if these polynomials jointly carried significant explanatory power. The test statistic ( $\chi^2(2)$  distributed under  $H_0$ ) equaled 0.57 with a corresponding  $\text{Prob} > \chi^2$  of 0.7509). Hence, strongly rejecting the null hypothesis of non-normality of the errors.
5. We test a variance component for which the alternative hypothesis is one-sided. Negative variances, which exist under a two-sided test, do not apply.

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## Appendix

**Table A1.** Participating organizations.

Organization	Idnum Organization	Used Sample (averages)		Original Sample (averages)	
		Age	Gender	Age	Gender
Statistics Norway	1155	3,96	1,42	3,66	1,43
Norwegian Competition Authority	1168	3,17	1,33	3,00	1,33
Directorate of Taxes	1193	3,60	1,31	3,47	1,47
Directorate of Norwegian Customs	1408	3,92	1,60	3,88	1,51
Financial Supervisory Authority	1535	3,74	1,32	3,75	1,44
Norwegian Government Agency for Financial Management	1616	4,29	1,41	4,00	1,49
Norwegian Maritime Directorate	2012	3,52	1,19	3,75	1,29
Norwegian Water Resources and Energy Directorate	2801	3,79	1,33	3,80	1,35
Norwegian Patent Office	2802	3,24	1,41	3,19	1,54
Norwegian Petroleum Directorate	2813	4,42	1,33	4,05	1,55
Norwegian Agency for Development Cooperation	4802	4,22	1,59	4,06	1,57
Norwegian National Security Authority (NoNSA)	5814	3,36	1,25	3,53	1,32
Directorate of Fisheries	6801	3,96	1,25	3,78	1,40
Norwegian Coastal Administration (NCA)	6802	4,12	1,29	4,10	1,27
Norwegian Board of Health Supervision	7012	4,38	1,50	4,35	1,59
Norwegian Medicines Agency	7668	3,68	1,50	3,68	1,60
Norwegian Directorate of Health (central unit)	7674	3,71	1,51	3,71	1,55
Norwegian Labour Inspection Authority	7806	4,00	1,77	3,67	1,70
Directorate of Public Roads	8801	4,16	1,34	4,04	1,39
Norwegian Communications Authority (Nkom)	8805	3,77	1,15	3,56	1,29
Norwegian Railway Inspectorate	8807	3,67	1,33	3,63	1,38
Norwegian National Rail Administration	8808	3,80	1,16	3,80	1,28
Civil Aviation Authority	8813	4,33	1,42	4,23	1,32
Directorate for buidling quality	9805	2,83	1,50	2,93	1,33
Norwegian Directorate of Immigration	9806	3,48	1,59	3,41	1,60
Data Inspectorate	13,505	3,50	1,33	3,44	1,44
National Police Directorate	13,655	3,94	1,50	3,85	1,44
Directorate for Civil Protection and Emergency Planning	13,659	3,95	1,44	3,88	1,45
Norwegian Directorate for Children, Youth and Family Affairs	18,603	3,73	1,59	3,56	1,64
Norwegian Food Safety Authority	19,691	3,97	1,57	3,88	1,61
Norwegian Directorate for Nature Management	19,804	3,81	1,13	3,76	1,29
Norwegian Agricultural Authority	19,828	3,93	1,47	3,54	1,42
Climate and Pollution Agency	20,501	3,39	1,61	3,58	1,58
Arts Council Norway	21,522	4,00	1,63	4,00	1,64
Directorate for Cultural Heritage	21,528	4,14	1,48	4,02	1,49
Norwegian Gaming Board	26,611	3,33	1,50	3,56	1,56
Petroleum Safety Authority Norway	29,603	4,30	1,20	4,02	1,34
Norwegian Media Authority	34,604	4,13	1,38	4,17	1,50
Norwegian Directorate for Education and Training	35,603	3,60	1,57	3,60	1,62
Directorate for Education and Training	38,602	3,63	1,50	3,72	1,50
NAV- Directorate of Labour	38,612	3,67	1,54	3,72	1,52

**Table A2.** Structural reforms cited in the Norwegian state administration database.

Founding events	Maintenance Events	Ending events
Regular founding	Maintenance by secession	Ending by absorption
Founding by secession	Maintenance by absorption	Ending by splitting
Founding by splitting	Change in name	Ending with a merger
Founding by a merger	Change in location	Pure disband
Founding by complex reorganization	Maintenance by reorganization	Ending by complex reorganization
Entered; new relevant entity	New line of reporting	Discharged; no longer a relevant entity
	New superior organization (horizontal movement)	
	New affiliation/administrative level	
	New superior organization and level	
	No change to units, but a change in superiors	
	Units moving into or out of integrated organizations	

For more information see <http://www.nsd.uib.no/polsys/data/en/forvaltning/internending>

**Table A3.** COFOG Coding.

COFOG	Description	Frequency (% of organizations)
1	General public services	14
2	Defense	4
3	Public order and safety	8
4	Economic affairs	43
5	Environmental protection	4
6	Housing and community amenities	2
7	Health	6
8	Recreation, culture and religion	6
9	Education	2
10	Social Protection	10



**Table A4.** Multilevel results with crossed effects (organization and year). Without the structural reform 'Change of name'.

Variables	(1)	(2)	(3)	(4)	(5)
Constant	3.88*** (0.04)	3.66*** (0.27)	3.58*** (0.28)	3.59*** (0.28)	x3.63*** (0.29)
<b>Individual level</b>					
Age		0.08*** (0.02)	0.08*** (0.02)	0.07*** (0.02)	0.07*** (0.02)
Gender		0.03 (0.05)	0.04 (0.05)	0.04 (0.05)	0.04 (0.05)
Position		$\chi^2$ (3) = 1.6	$\chi^2$ (3) = 1.11	$\chi^2$ (3) = 1.05	$\chi^2$ (3) = 1.34
Tenure		$\chi^2$ (2) = 0.89	$\chi^2$ (2) = 1.24	$\chi^2$ (2) = 1.10	$\chi^2$ (2) = 1.48
Starting job		$\chi^2$ (4) = 4.21	$\chi^2$ (4) = 3.67	$\chi^2$ (4) = 3.62	$\chi^2$ (4) = 3.79
Rules		-0.07***	-0.07***	-0.07***	-0.07***
Task		$\chi^2$ (9) = 18.48**	$\chi^2$ (9) = 19.6**	$\chi^2$ (9) = 18.82**	$\chi^2$ (9) = 20.9**
Job offers		0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.07 (0.05)
Attitude toward superiors		0.03 (0.04)	0.03 (0.04)	0.03 (0.04)	0.03 (0.04)
Studied abroad		0.02 (0.06)	0.01 (0.06)	0.00 (0.06)	0.02 (0.06)
Language		$\chi^2$ (3) = 4.85	$\chi^2$ (3) = 5.69	$\chi^2$ (3) = 5.8	$\chi^2$ (3) = 5.39
Importance of loyalty		0.00 (0.03)	0.00 (0.03)	0.00 (0.03)	0.01 (0.03)
Importance-Professional		-0.10*** (0.04)	-0.11*** (0.04)	-0.11*** (0.04)	-0.11*** (0.04)
Importance of Laws		-0.00 (0.03)	-0.00 (0.03)	-0.00 (0.03)	0.00 (0.03)
Political		-0.18*** (0.05)	-0.18*** (0.05)	-0.18*** (0.05)	-0.18*** (0.05)
<b>Organization level</b>					
Cofog		$\chi^2$ (9) = 23.07***	$\chi^2$ (9) = 23.07***	$\chi^2$ (9) = 25.24***	$\chi^2$ (9) = 20.29**
Organizational age		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
History (1)		-0.04*** (0.01)	-0.04*** (0.01)		

(Continued)

Table A4. (Continued).

Variables	(1)	(2)	(3)	(4)	(5)
History (2)				-0.05*** (0.02)	
History (3)					-0.26** (0.11)
Observations	1,049	1,049	1,049	1,049	1,049
Number of Organizations	40	40	40	40	40
Number of Years	2	2	2	2	2
LR test (conservative)	$\chi^2(2) = 40.59***$	$\chi^2(2) = 37.74***$	$\chi^2(2) = 6.91**$	$\chi^2(2) = 6.18**$	$\chi^2(2) = 7.91**$
Intra-class correlation	0.12				
Level-1 R <sup>2</sup>		0.07			
Level-2 R <sup>2</sup>			0.71	0.72	0.64

Standard errors are shown in parentheses \*\*\* p < 0.01. \*\* p < 0.05. \* p < 0.1

Used survey questions for:

Dependent:

Have you, during the past year, put aside program proposals, draft laws, regulations, etc. within your area because there was controversy about these?

Have you, during the past year, failed to raise a problem/matter within your area because you assumed that there would be a dispute about it

Independents:

Age: What is your age?

Gender: Sex?

Position: What is your current job level?

Tenure: How long have you been employed in the current organization?

Startingjob: At what level was your first job in this agency central?

Rules: Are there clear rules or well-established practices regarding the performance of your work tasks?

Task: Which of the following tasks does the bulk of your work fall into?

Joboffers: Have you received any direct offers/inquiries regarding new posts during the past year?

Study abroad: Do you have education abroad for at least one year?

Language: What language do you use daily?

Importance-Loyalty: What weight do you add to each of the following considerations in carrying out your work tasks? Loyalty to the immediate superior

Importance- Professional: What weight do you add to each of the following considerations in carrying out your work tasks? Professional Considerations

Importance- Law: What weight do you add to each of the following considerations in carrying out your work tasks? Judicial proceedings, current law

Political: Are you currently, or have you been a member of any political party?

Attitude to superior: Do you want to send up a proposal you personally think is correct if you also know (or assume) that the proposal will encounter concerns of your superior?

Full correlation matrix:

Table A5. Correlation matrix.

Variables	Question <sup>a</sup>														
	2006	2016	Score	Mean	Sd.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Defensive silence	Factor		40	3.870	0.758										
Failed to propose an issue	46		47_1	4.283	0.943	1.0000									
Failed to raise an issue	47			4.268	0.928	0.6011*	1.0000								
<b>Individual level N = 1077</b>															
Age	9	531		3.807	1.062	0.1298*	0.0846	1.0000							
Gender	10	54		1.434	0.496	-0.0045	-0.0006	-0.1373*	1.0000						
Position	2	21		1.750	1.071	0.0480	0.0114	0.2092*	-0.0426	1.0000					
Tenure	2B	61_3		2.669	0.569	0.0482	0.0150	0.2603*	-0.0449	0.1969*	1.0000				
Startingjob	5	51		2.004	1.073	0.0008	0.0430	0.1059	-0.0223	0.5308*	-0.0224	1.0000			
Rules	17	7		2.829	1.159	-0.0246	-0.1664*	-0.0125	0.0094	0.0622	0.0341	0.0775	1.0000		
Task	15	5		6.003	2.474	-0.0139	-0.0060	-0.0079	0.0020	0.0013	-0.0423	0.0350	-0.0667	0.0161	1.0000
Joboffers	8A	52A		1.655	0.476	0.0422	0.0564	0.1493*	-0.0027	-0.0363	0.0551	-0.0679	-0.0363	0.0103	1.0000
Study abroad	13	56		1.805	0.396	0.0136	0.0337	0.0429	-0.1038	0.0209	0.0642	0.0301	-0.0483	-0.0554	0.0565
Language	54	57		1.929	0.374	0.0198	0.0305	-0.1396*	0.0348	-0.0765	-0.0878	-0.0179	-0.0300	0.0273	0.0196
Importance_loyalty	18B	188		1.666	0.837	0.0070	-0.0423	-0.0351	-0.0311	-0.0808	-0.0254	-0.0618	0.0896	-0.0022	-0.0171
Importance_professional	18F	18F		1.378	0.601	-0.0791	-0.0753	-0.0253	-0.1199*	0.0803	-0.0257	0.0699	0.0727	-0.0001	-0.0468
Importance_law	18J	18J		1.499	0.852	0.0184	-0.0553	-0.0167	-0.0789	0.0113	0.0010	0.0295	0.2313*	0.1179*	-0.0447
Political	59	62		0.291	0.454	-0.1034	-0.0947	0.0914	0.0053	0.1016	0.0268	0.0912	0.0485	0.0233	-0.0597
Attitude to superior	49	43		1.500	0.615	0.0326	-0.0124	0.0471	0.0496	-0.0668	-0.0659	-0.0268	-0.0129	0.0357	0.0228
Year				2010	4.942	0.0162	0.0849	0.1131*	0.0444	-0.2447*	-0.1243*	-0.0906	-0.1644*	0.0082	0.0125
<b>Organizational level N = 41 (across 2 years)</b>															
Individuals per organization															
				Min.	6										
				Average	26.3										
				Max.	78										
Number of events				2.877	2.853	(19)	0.0016	0.0643	-0.0840	0.0335	-0.0090	-0.0770	-0.0196	-0.0180	-0.0059
Linear depreciation				2.048	2.425	(20)	-0.0239	0.0039	-0.0627	0.0051	-0.0298	-0.0625	-0.0440	-0.0280	-0.0373
Exponential depreciation				0.117	0.257	(21)	-0.0026	-0.0664	-0.0725	0.1236*	0.0180	0.0359	0.0143	0.0179	0.0052
COFOG				5.024	2.992	(22)	-0.1358*	-0.0830	0.1207*	-0.0387	-0.0242	0.0310	0.0824	-0.0021	-0.0137
Orgage				39.60	46.71	(23)	0.0900	0.0690	-0.0931	0.0137	-0.0124	-0.1154*	-0.0028	0.0049	0.0052
Study abroad	(11)	(12)	(13)			(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Language	1.0000														
Importance_loyalty	0.0074	1.0000													
Importance_professional	-0.0174	0.0374	1.0000												
	-0.0493	-0.0301	0.0924	1.0000											

(Continued)



Table A5. (Continued).

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Importance_Law	-0.0228	0.0114	0.1649*	0.2558*	1.0000								
Political	-0.0566	0.0661	-0.0180	-0.0146	-0.0002	1.0000							
Attitude to superior	0.0042	-0.0443	-0.1170*	0.1163*	0.0696	-0.0254	1.0000						
Year	-0.0867	0.0810	-0.0964	-0.0968	-0.1432*	0.0280	0.0009	1.0000					
Number of events	-0.0433	0.0433	-0.0697	0.0373	-0.0387	-0.0098	0.0090	0.1673*	1.0000				
Linear depreciation	-0.0781	0.0488	-0.0768	0.0322	-0.0547	0.0096	0.0341	0.2682*	0.8802*	1.0000			
Exponential depreciation	0.0108	0.0391	0.0022	0.0383	0.0651	-0.0307	-0.0202	-0.1951*	0.2010*	0.1845*	1.0000		
COFOD	-0.0235	-0.0508	-0.0138	0.0223	0.0011	0.0393	0.0732	-0.0484	-0.2105*	-0.0874	-0.1256*	1.0000	
Orgage	0.0398	0.0190	-0.0191	0.0007	0.0260	-0.0722	-0.0171	-0.0566	0.6020*	0.4171*	-0.0289	-0.3782*	1.0000

<sup>a</sup>The surveys can be consulted online: <http://www.nsd.uib.no/polsys/StatiskeDokument/SpSkjemaDir06.html>



**Table A6.** Variance inflation factor.

Variable	VIF	SQRT VIF	Tolerance	R-Squared
Defensive silence (q1)	1.63	1.28	0.6148	0.3852
Defensive silence (q2)	1.64	1.28	0.6092	0.3908
Age	1.20	1.10	0.8299	0.1701
Gender	1.06	1.03	0.9453	0.0547
Position	1.54	1.24	0.6505	0.3495
Tenure	1.14	1.07	0.8757	0.1243
Startingjob	1.45	1.20	0.6908	0.3092
Rules	1.11	1.05	0.9031	0.0969
Task	1.02	1.01	0.9763	0.0237
Studiedabroad	1.03	1.02	0.9686	0.0314
Joboffers	1.04	1.02	0.9571	0.0429
Attitude to superior	1.07	1.03	0.9374	0.0626
Language	1.04	1.02	0.9583	0.0417
Loyalty	1.07	1.03	0.9347	0.0653
Professional	1.13	1.06	0.8844	0.1156
Procedure	1.18	1.08	0.8502	0.1498
Political engagement	1.05	1.03	0.9490	0.0510
Mean VIF	1.20			